Salimi, A.
09/980064
Seq. IDs 1 & 2

FILE 'REGISTRY' ENTERED AT 15:23:36 ON 03 MAR 2004
L1 109 S AGVDNRECI | AQIFNKPYW/SQSP

FILE 'HCAPLUS' ENTERED AT 15:24:49 ON 03 MAR 2004
L2 30 S L1

L4 22 S L2(L)(HPV OR PAPILLOM? OR WART VIRUS)

L4 ANSWER 1 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 11 Jan 2004
ACCESSION NUMBER: 2004:20437 HCAPLUS
DOCUMENT NUMBER: 140:87675
TITLE: Antisense oligonucleotides, ribozymes and DNAzymes targeting human papillomavirus genes E6 & E7 for treatment of HPV infections associated with cervical cancer
INVENTOR(S): Clawson, Gary A.; Pan, Wei-Hua; Christensen, Neil; Thiboutot, Diane
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 65 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004002416	A2	20040108	WO 2003-US20340	20030626

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-391795P P 20020626
US 2002-417997P P 20021014
US 2003-449066P P 20030221

AB The invention provides antisense oligonucleotides (ASO), ribozymes (Rz) and DNAzymes (Dz) targeting human papillomavirus (HPV) genes E6 & E7 for treatment of HPV infections associated with cervical cancer. The ASO, Rz, or Dz are provided in a topical drug, in conjunction with keratolytic agents (salicylic acid), and applied to the HPV infected cells (cervical, skin or epithelium). The ASO, Rz or Dz target HPV genes E6/E7 mRNA for cleavage, resulting in a decreased replication rate and thus decreased number of cells infected. The invention can be applied towards treating HPV infections (e.g., HPV infections of cutaneous and mucosal epithelial cells) and HPV-associated conditions (e.g., cervical dysplasia, HPV-associated cervical carcinomas, oral mucosal papilloma cancers, laryngeal papilloma cancers) in humans.

Searcher : Shears 571-272-2528

IT **624440-70-6**
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; antisense oligonucleotides, ribozymes and DNAzymes targeting **HPV** genes E6 & E7 for treatment of **HPV** infections associated with cervical cancer)

L4 ANSWER 2 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 28 Nov 2003
ACCESSION NUMBER: 2003:931391 HCAPLUS
DOCUMENT NUMBER: 140:1544
TITLE: Methods for preparing chimeric human papillomavirus 16 L1 virus like particles and uses as vaccines
INVENTOR(S): Varsani, Arvind Devshi; Rybicki, Edward Peter
PATENT ASSIGNEE(S): University of Cape Town, S. Afr.
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003097673	A2	20031127	WO 2003-IB1912	20030519

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: ZA 2002-3957 A 20020517
AB The invention describes a method for producing a chimeric human papillomavirus (HPV) L1 polypeptide containing a heterologous peptide, and in particular, a HPV L2 peptide. The method comprises the steps of introducing a DNA sequence coding for the heterologous peptide into a DNA sequence coding for the L1 polypeptide; introducing the DNA sequence including the sequences for the L1 polypeptide and heterologous peptide into a host cell in which the DNA sequence can be expressed; causing expression of the DNA sequence; and recovering the resulting chimeric L1 polypeptide which includes the heterologous peptide. Typically, the nucleotides encoding the heterologous peptide replace the nucleotides of the L1 polypeptide at the point of insertion. The invention also describes a vector for use in the method, a host cell containing the vector, and a vaccine including the chimeric HPV L1 polypeptide produced according to the method.
IT **627561-74-4P 627561-77-7P 627561-78-8P**
627561-79-9P 627561-80-2P 627561-81-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study,

unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; methods for preparing chimeric human **papillomavirus** 16 L1 virus like particles and uses as vaccines)

L4 ANSWER 3 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 14 Nov 2003
ACCESSION NUMBER: 2003:892896 HCAPLUS
DOCUMENT NUMBER: 139:379997
TITLE: Production of transgenic plant expressing papillomavirus L1 capsid protein and use as papillomavirus vaccines
INVENTOR(S): Rose, Robert C.; Mason, Hugh S.; Warzecha, Heribert
PATENT ASSIGNEE(S): University of Rochester, USA; Boyce Thompson Institute for Plant Research, Inc.
SOURCE: PCT Int. Appl., 74 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003093437	A2	20031113	WO 2003-US13757	20030502

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-377467P P 20020502

AB The present invention relates to a method of producing papillomavirus virus-like particles or capsomeres. This method involves providing a transgenic plant or plant seed transformed with a nucleic acid mol. comprising a papillomavirus L1 capsid protein coding sequence and growing the transgenic plant or a transgenic plant grown from the transgenic plant seed under conditions effective to produce virus-like particles containing the papillomavirus L1 capsid protein. The plant or a component part or a fruit thereof can be administered to a subject under conditions effective to immunize the subject against disease resulting from infection by a papillomavirus. DNA constructs, expression vectors, host cells, plants, and plant seeds are also disclosed.

IT **622878-55-1**
RL: PRP (Properties)
(unclaimed protein sequence; production of transgenic plant expressing **papillomavirus** L1 capsid protein and use as **papillomavirus** vaccines)

L4 ANSWER 4 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 22 Aug 2003
ACCESSION NUMBER: 2003:656897 HCAPLUS
DOCUMENT NUMBER: 139:193297
TITLE: Complexes of human and human papillomavirus proteins and their use in drug screening and diagnosis
INVENTOR(S): Jackson, Amanda; Ooi, Chean Eng; Lewin, David A.; Cuthill, Scott
PATENT ASSIGNEE(S): Curagen Corporation, USA; Hoffmann-La Roche Inc.
SOURCE: PCT Int. Appl., 156 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003068940	A2	20030821	WO 2003-US4594	20030214
WO 2003068940	A3	20031127		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-356911P P 20020214
AB Complexes of human papillomavirus (HPV) proteins E1-E7, L1, and L2 with human proteins are disclosed. These complexes may be used to screen for agents which disrupt the complexes. These agents may be used for treatment of HPV infections. A method of detecting these complexes may be used in screening for pre-cancerous cervical lesions and for classifying HPV infections. Thus, yeast two-hybrid assays were used to identify interactions of HPV-1a, HPV-11, and HPV-16 proteins with human proteins.
IT **583085-22-7**
RL: PRP (Properties)
(unclaimed protein sequence; complexes of human and human **papillomavirus** proteins and their use in drug screening and diagnosis)

L4 ANSWER 5 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 22 Aug 2003
ACCESSION NUMBER: 2003:656523 HCAPLUS
DOCUMENT NUMBER: 139:196258
TITLE: Manufacture of papillomavirus-like particles for vaccine use in insect cells using codon-optimized synthetic genes
INVENTOR(S): Robinson, Robin A.; Cioce, Vittoria

PATENT ASSIGNEE(S): Novavax, Inc., USA
SOURCE: PCT Int. Appl., 126 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003068163	A2	20030821	WO 2003-US4473	20030214
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003228696	A1	20031211	US 2003-367095	20030214

PRIORITY APPLN. INFO.:

US 2002-356113P	P	20020214
US 2002-356118P	P	20020214
US 2002-356119P	P	20020214
US 2002-356123P	P	20020214
US 2002-356126P	P	20020214
US 2002-356133P	P	20020214
US 2002-356135P	P	20020214
US 2002-356150P	P	20020214
US 2002-356151P	P	20020214
US 2002-356152P	P	20020214
US 2002-356154P	P	20020214
US 2002-356156P	P	20020214
US 2002-356157P	P	20020214
US 2002-356161P	P	20020214
US 2002-356162P	P	20020214

AB Virus-like particles that exhibit conformational antigenic epitopes capable of eliciting neutralizing antibodies to human papillomaviruses are manufactured in insect cells using synthetic genes with codon usage optimized for efficient expression of these genes in animal cells. Pharmaceutical compns., vaccines, and diagnostic test kits containing the chimeric virus-particles are also provided. The proteins that form the virus-like particles are manufactured by expression of the genes in a derivative of the Sf9 cell line (Sf9S) using a baculovirus expression vector. Manufacture and chromatog. purification of human papillomavirus 16 virus-like particles is demonstrated. Vaccines containing the virus-like particles were well-tolerated by human volunteers and vaccines using Mf-59 adjuvant showed a prolonged immunity to the virus.

IT **582340-39-4**
RL: PRP (Properties)
(unclaimed protein sequence; manufacture of **papillomavirus** -like particles for vaccine use in insect cells using codon-optimized synthetic genes)

L4 ANSWER 6 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 16 Apr 2003
ACCESSION NUMBER: 2003:291123 HCAPLUS
DOCUMENT NUMBER: 138:383747
TITLE: Human papillomavirus type 16 L1 capsomeres induce L1-specific cytotoxic T lymphocytes and tumor regression in C57BL/6 mice
AUTHOR(S): Ohlschlager, Peter; Osen, Wolfram; Dell, Kerstin; Faath, Stefan; Garcea, Robert L.; Jochmus, Ingrid; Muller, Martin; Pawlita, Michael; Schafer, Klaus; Sehr, Peter; Staib, Caroline; Sutter, Gerd; Gissmann, Lutz
CORPORATE SOURCE: Angewandte Tumorvirologie, Deutsches Krebsforschungszentrum, Heidelberg, D-69120, Germany
SOURCE: Journal of Virology (2003), 77(8), 4635-4645
CODEN: JOVIAM; ISSN: 0022-538X
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB We analyzed capsomeres of human papillomavirus type 16 (HPV16) consisting of the L1 major structural protein for their ability to trigger a cytotoxic T-cell (CTL) response. To this end, we immunized C57BL/6 mice and used the L1165-173 peptide for ex vivo restimulation of splenocytes prior to anal. (51Cr release assay and enzyme-linked immunospot assay [ELISPOT]). This peptide was identified in this study as a Db-restricted naturally processed CTL epitope by HPV16 L1 sequence anal., major histocompatibility complex class I binding, and 51Cr release assays following immunization of C57BL/6 mice with HPV16 L1 virus-like particles (VLPs). HPV16 L1 capsomeres were obtained by purification of HPV16 L1 lacking 10 N-terminal amino acids after expression in Escherichia coli as a glutathione S-transferase fusion protein (GST-HPV16 L1ΔN10). Sedimentation anal. revealed that the majority of the purified protein consisted of pentameric capsomeres, and assembled particles were not observed in minor contaminating higher-mol.-weight material. S.c. (s.c.) as well as intranasal immunization of C57BL/6 mice with HPV16 L1 capsomeres triggered an L1-specific CTL response in a dose-dependent manner as measured by ELISPOT and 51Cr release assay. Significant reduction of contaminating bacterial endotoxin (lipopolysaccharide) from the capsomere preparation did not diminish the immunogenicity. Antibody responses (serum and vaginal) were less robust under the exptl. conditions employed. In addition, s.c. vaccination with HPV16 L1 capsomeres induced regression of established tumors expressing L1 determinants (C3 tumor cells). Our data demonstrate that capsomeres are potent inducers of CTL responses similar to completely assembled T=7 VLPs. This result is of potential relevance for the development of (combined prophylactic and therapeutic) HPV-specific vaccines, since capsomeres can be produced easily and also can be modified to incorporate heterologous sequences such as early HPV proteins.

IT **308800-09-1**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(human **papillomavirus** type 16 L1 capsomeres induce L1-specific cytotoxic T lymphocytes and tumor regression in

C57BL/6 mice)
REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 15 Nov 2002
ACCESSION NUMBER: 2002:869424 HCAPLUS
DOCUMENT NUMBER: 137:364445
TITLE: DNA sequences encoding human papillomavirus 16 L1 proteins capable of efficiently forming virus-like particles
INVENTOR(S): Durst, Matthias; Gissmann, Latz
PATENT ASSIGNEE(S): Germany
SOURCE: U.S. Pat. Appl. Publ., 17 pp., Cont. of U.S. Ser. No. 884,168, abandoned.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002168372	A1	20021114	US 1998-162904	19980929
PRIORITY APPLN. INFO.:			US 1993-92528 B1	19930716
			US 1996-641570 B1	19960501
			US 1997-884168 B1	19970627

AB The present invention provides novel DNA sequences encoding human papillomavirus L1 proteins capable of efficiently forming virus-like particles (VLP). In particular, the present invention relates to a DNA sequence encoding an HPV16 L1 protein. Furthermore, the present invention relates to expression plasmids containing said DNA, to host cells transformed by said expression plasmids, to methods for the production of said L1 protein, to the VLP formed by said L1 protein, to antibodies reacting with said protein and said VLP, to diagnostic and pharmaceutical compns. and methods and to a vaccine comprising said VLP.

IT **475437-53-7P**, Protein L1 (human **papillomavirus** 16)
475437-55-9P, Protein L1 (human **papillomavirus** 16)
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; DNA sequences encoding human **papillomavirus** 16 L1 proteins capable of efficiently forming virus-like particles)

L4 ANSWER 8 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 07 Jun 2002
ACCESSION NUMBER: 2002:429086 HCAPLUS
DOCUMENT NUMBER: 137:19374
TITLE: T-cell epitopes of papillomavirus L1 and E7 proteins and their use in diagnosis and therapy of infection
INVENTOR(S): Nieland, John; Kaufmann, Andreas

PATENT ASSIGNEE(S): Medigene Aktiengesellschaft, Germany; Kather, Angela; Schinz, Manuela
SOURCE: PCT Int. Appl., 126 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002044384	A2	20020606	WO 2001-EP14037	20011130
WO 2002044384	A3	20031016		
W: AU, CA, JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
DE 10059631	A1	20020718	DE 2000-10059631	20001201
AU 2002020744	A5	20020611	AU 2002-20744	20011130
EP 1370661	A2	20031217	EP 2001-998642	20011130
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				

PRIORITY APPLN. INFO.: DE 2000-10059631 A 20001201
WO 2001-EP14037 W 20011130

AB T cell epitopes of papillomavirus L1 and E7 proteins that may be useful in the diagnosis and treatment of viral infection are identified and characterized. Identification of epitopes using chimeric baculovirus-like particles is demonstrated.

IT **434341-62-5 434341-76-1**
RL: PRP (Properties)
(unclaimed sequence; t-cell epitopes of **papillomavirus** L1 and E7 proteins and their use in diagnosis and therapy of infection)

L4 ANSWER 9 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 27 Sep 2001
ACCESSION NUMBER: 2001:705899 HCAPLUS
DOCUMENT NUMBER: 136:257935
TITLE: Enhancement of capsid gene expression: preparing the human papillomavirus type 16 major structural gene L1 for DNA vaccination purposes
AUTHOR(S): Leder, Christoph; Kleinschmidt, Jurgen A.; Wiethe, Carsten; Muller, Martin
CORPORATE SOURCE: Forschungsschwerpunkt fur Angewandte Tumorvirologie, Deutsches Krebsforschungszentrum Heidelberg, Heidelberg, 69120, Germany
SOURCE: Journal of Virology (2001), 75(19), 9201-9209
CODEN: JOVIAM; ISSN: 0022-538X
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Expression of the structural proteins L1 and L2 of the human papillomaviruses (HPV) is tightly regulated. As a consequence, attempts to express these prime-candidate genes for prophylactic vaccination against papillomavirus-associated diseases in mammalian cells by means of simple DNA transfections result in insufficient production of the viral antigens. Similarly, in vivo DNA vaccination

using HPV L1 or L2 expression constructs produces only weak immune responses. In this study we demonstrate that transient expression of the HPV type 16 L1 and L2 proteins can be highly improved by changing the RNA coding sequence, resulting in the accumulation of significant amts. of virus-like particles in the nuclei of transfected cells. Data presented indicate that, in the case of L1, adaptation for codon usage accounts for the vast majority of the improvement in protein expression, whereas translation-independent posttranscriptional events contribute only to a minor degree. Finally, the adapted L1 genes demonstrate strongly increased immunogenicity in vivo compared to that of unmodified L1 genes.

IT **405194-67-4P**
RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(amino acid sequence; enhancement of capsid gene expression, preparing the human **papillomavirus** type 16 major structural gene L1 for DNA vaccination purposes)

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 10 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 15 Jun 2001
ACCESSION NUMBER: 2001:434895 HCAPLUS
DOCUMENT NUMBER: 135:45179
TITLE: Inducing cellular immune responses to human papillomavirus using peptide and nucleic acid compositions
INVENTOR(S): Sette, Alessandro; Sidney, John; Southwood, Scott; Chesnut, Robert; Celis, Esteban; Grey, Howard M.
PATENT ASSIGNEE(S): Epimmune Inc., USA
SOURCE: PCT Int. Appl., 756 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001041799	A1	20010614	WO 2000-US33549	20001211
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1246644	A1	20021009	EP 2000-986316	20001211
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

PRIORITY APPLN. INFO.: US 1999-172705P P 19991210
US 2000-641528 A 20000815
WO 2000-US33549 W 20001211

AB This invention uses our knowledge of the mechanisms by which antigen is recognized by T cells to identify and prepare human papillomavirus (HPV) epitopes, and to develop epitope-based vaccines directed towards HPV. More specifically, this application communicates our discovery of pharmaceutical compns. and methods of use in the prevention and treatment of HPV infection. The disclosed human papillomavirus protein epitopes include HLA-A1, HLA-A2, HLA-A3, HLA-A24, HLA-B7, HLA-B27, HLA-B58, HLA-B62 and HLA-DR supermotifs; and HLA-A1, HLA-A2, HLA-A3, HLA-A24, HLA-A11, HLA-DR3a and HLA-DR3b motifs. These supermotifs and motifs are derived from E1, E2, E5, E6, E7, L1 and L2 proteins of HPV16, HPV18, HPV31, HPV33, HPV45, HPV56, HPV6A, HPV6B, and HPV11.

IT **243135-53-7 344806-30-0**, Protein L1 (human **papillomavirus** 31)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; epitope-based vaccines for inducing cellular immune responses to human **papillomavirus**)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 11 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 12 Dec 2000
ACCESSION NUMBER: 2000:865093 HCAPLUS
DOCUMENT NUMBER: 134:16537
TITLE: Cytotoxic T-cell epitopes of the Papillomavirus L1-Protein and their use in diagnostics and therapy
INVENTOR(S): Schaefer, Klaus; Faath, Stefan; Jochmus, Ingrid; Nieland, John; Osen, Wolfram
PATENT ASSIGNEE(S): Medigene A.-G., Germany; Deutsches Krebsforschungszentrum (DKFZ)
SOURCE: Ger. Offen., 26 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19925235	A1	20001207	DE 1999-19925235	19990601
WO 2000073464	A1	20001207	WO 2000-EP5005	20000531
W: AU, CA, JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1183367	A1	20020306	EP 2000-936846	20000531
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2003503018	T2	20030128	JP 2001-500776	20000531

PRIORITY APPLN. INFO.: DE 1999-19925235 A 19990601
WO 2000-EP5005 W 20000531

AB The available invention concerns Papillomavirus T-cell epitopes with an amino acid sequence AQIFNKPYW, AGVDNRECI, and/or a functionally active variant thereof, as well as their use in diagnostics and therapy.

IT **308800-07-9**, AQIFNKPYW peptide+ **308800-09-1**, AGVDNRECI peptide+
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(cytotoxic T-cell epitopes of **Papillomavirus** L1 protein and use in diagnostics and therapy)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 12 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 22 Sep 2000
ACCESSION NUMBER: 2000:666563 HCAPLUS
DOCUMENT NUMBER: 133:256735
TITLE: Human papillomavirus L1 proteins for use in vaccines, diagnostic reagents, and tools for studying surface receptor interactions
INVENTOR(S): Harrison, Stephen; Chen, Xiaojiang
PATENT ASSIGNEE(S): The President & Fellows of Harvard College, USA
SOURCE: PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000054730	A2	20000921	WO 2000-US6017	20000308
WO 2000054730	A3	20011115		
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6551597	B1	20030422	US 2000-520822	20000308
US 2003118609	A1	20030626	US 2002-301260	20021121

PRIORITY APPLN. INFO.:
US 1999-125208P P 19990318
US 1999-148544P P 19990812
US 2000-520822 A3 20000308

AB Large quantities of soluble multimers of human papillomavirus L1 proteins can be produced in bacterial expression systems and used as therapeutic and diagnostic tools. L1 multimers can be used in immunogenic vaccine compns., as diagnostic reagents, and as tools for mapping cell surface receptor interactions.

IT **295372-67-7P**, Protein L1 (human **papillomavirus** 16)

RL: BAC (Biological activity or effector, except adverse); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(amino acid sequence; human **papillomavirus** L1 proteins for use in vaccines, diagnostic reagents, and tools for studying surface receptor interactions)

L4 ANSWER 13 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 04 Jun 2000
ACCESSION NUMBER: 2000:368423 HCAPLUS
DOCUMENT NUMBER: 133:22397
TITLE: Chimeric biotin-binding papillomavirus protein for delivery of biotinylated compounds to cells
INVENTOR(S): Mueller, Martin; Kast, Wijbe M.; Nieland, John D.; Velders, Markwin P.
PATENT ASSIGNEE(S): Loyola University of Chicago, USA
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000031128	A1	20000602	WO 1999-US27555	19991122
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6380364	B1	20020430	US 1999-413611	19991006

PRIORITY APPLN. INFO.: US 1998-109510P P 19981123
US 1999-413611 A 19991006

AB The present invention provides a chimeric protein including a first domain which includes at least a portion of a papillomavirus L1 or L2 protein and a second domain which includes a biotin-binding polypeptide. The invention also provides papillomaviruses, capsomeres, and VLPs (virus-like particles), including such chimeric proteins and a method for delivering biotinylated substances to cells using such reagents.

IT **272100-89-7 272100-91-1**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(amino acid sequence; chimeric biotin-binding **papillomavirus** protein for delivery of biotinylated compds. to cells)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR

THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 14 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 01 Oct 1999
ACCESSION NUMBER: 1999:626218 HCAPLUS
DOCUMENT NUMBER: 131:262610
TITLE: Formulation having a papilloma virus-specific protein
INVENTOR(S): Burger, Alexander; Gabelsberger, Josef
PATENT ASSIGNEE(S): Medigene Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9948917	A2	19990930	WO 1999-EP1999	19990324
WO 9948917	A3	19991209		
W: AU, CA, JP, MX, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19812940	A1	19991007	DE 1998-19812940	19980324
DE 29824556	U1	20010927	DE 1998-29824556	19980324
CA 2323526	AA	19990930	CA 1999-2323526	19990324
AU 9935989	A1	19991018	AU 1999-35989	19990324
EP 1066321	A2	20010110	EP 1999-917850	19990324
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002507625	T2	20020312	JP 2000-537899	19990324

PRIORITY APPLN. INFO.: DE 1998-19812940 A 19980324
WO 1999-EP1999 W 19990324

AB Papilloma virus-specific early and late proteins are soluble in formulations containing 0.3-.apprx.4M salt with pH 7.3-7.45. Formulations containing these proteins, as well as deletion mutants and chimeric proteins which form viruslike particles, are useful for therapeutic and diagnostic purposes. Thus, a human papilloma virus 16 L1E7 fusion protein gene was constructed by recombinant DNA technol., and expressed as viruslike particles in Trichoplusia ni cells using a baculovirus vector.

IT **244773-43-1**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(formulation having a **papilloma** virus-specific protein)

L4 ANSWER 15 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 27 Jul 1999
ACCESSION NUMBER: 1999:457683 HCAPLUS
DOCUMENT NUMBER: 131:209883
TITLE: Nucleotide sequences and further characterization of human papillomavirus DNA

present in the CaSki, SiHa and HeLa cervical carcinoma cell lines
AUTHOR(S): Meissner, John D.
CORPORATE SOURCE: Human Papillomavirus Section, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Public Health Service, US Department of Health and Human Services, Atlanta, GA, 30333, USA
SOURCE: Journal of General Virology (1999), 80(7), 1725-1733
CODEN: JGVIAY; ISSN: 0022-1317
PUBLISHER: Society for General Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The complete nucleotide sequences of the human papillomavirus type 16 (HPV-16) variants present in the CaSki and SiHa cervical carcinoma cell lines and the primary subgenomic HPV-18 variant present in the HeLa cervical carcinoma cell line were determined using overlapping bulk PCR products as templates. PCR-based methods were also used to characterize five previously unreported CaSki HPV-16 genomic disruptions and the 5' cellular-viral junction common to all HeLa HPV-18 subgenomic structures.
IT **243135-53-7**
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; nucleotide sequences and further characterization of human **papillomavirus** DNA present in CaSki, SiHa and HeLa cervical carcinoma cell lines)
REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 16 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 02 Feb 1998
ACCESSION NUMBER: 1998:61423 HCAPLUS
DOCUMENT NUMBER: 128:213916
TITLE: The genomes of three of four novel HPV types, defined by differences of their L1 genes, show high conservation of the E7 gene and the URR
AUTHOR(S): Delius, Hajo; Saegling, Bettina; Bergmann, Krister; Shamanin, Vladimir; De Villiers, Ethel-Michele
CORPORATE SOURCE: Division for Tumorvirus Characterization, Research Program Applied Tumorvirology, Deutsches Krebsforschungszentrum, Heidelberg, 69120, Germany
SOURCE: Virology (1998), 240(2), 359-365
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The DNA genomes of four new human papillomaviruses, HPV 75, HPV 76, HPV 77, and HPV 80, have been cloned, sequenced, and characterized. HPV 75, HPV 76 (both HPV 49-related), and HPV 77 (HPV 29-related) were isolated from benign cutaneous warts and HPV 80 (HPV 15-related) from histol. normal skin. HPV 77 has also been

demonstrated in dysplastic warts and squamous cell carcinomas of the skin. The sequence data presented in this study led to a proposed modification of the definition of a new HPV type. The high degree of DNA sequence similarity between the E7 ORF of HPV 77 and HPV 29 (97.7%), as opposed to the E6 (82.8%) and L1 (85.3%) ORFs, might suggest conservation of a specific function or a possible recombinational event. Only the E6 and L1 ORFs of HPV 75 and HPV 76 have a similarity lower than 90%, whereas the DNA sequences of their upstream regulatory regions (URRs) share a similarity of 93%. The E7, E1, and E4 ORFs, as well as the URR of HPV 15 and HPV 80, share sequence similarities higher than 90%. Such a divergence in the similarity between different segments of the virus genomes of closely related HPV types has not been noted to date. A detailed comparative sequence anal. was performed. HPV 75, HPV 76, and HPV 80 revealed features characteristic of truly cutaneous HPV types, whereas HPV 77 shared several characteristics with the mucosal HPV types, some of which may have functional consequences.

IT **204338-84-1**
RL: PRP (Properties)
(amino acid sequence; genomes of three of four novel **HPV** types, defined by differences of their L1 genes, show high conservation of E7 gene and URR)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 17 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 05 Jun 1996
ACCESSION NUMBER: 1996:326231 HCAPLUS
DOCUMENT NUMBER: 125:8475
TITLE: Papilloma virus-like particles containing fusion proteins for vaccines
INVENTOR(S): Gissmann, Lutz; Zhou, Jian; Mueller, Martin
PATENT ASSIGNEE(S): Medigene Gesellschaft fuer Molekularbiologische Diagnostik, Therapie und Technologie Mbh, USA
SOURCE: Ger. Offen., 4 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4435907	A1	19960411	DE 1994-4435907	19941007
DE 4435907	C2	19970724		
DE 4447664	C2	19990415	DE 1994-4447664	19941007
CA 2202090	AA	19960418	CA 1995-2202090	19951009
WO 9611272	A2	19960418	WO 1995-EP3974	19951009
WO 9611272	A3	19960926		
W: AU, BR, CA, JP, MX, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9642701	A1	19960502	AU 1996-42701	19951009
EP 809700	A1	19971203	EP 1995-934663	19951009
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,				

PT, IE

JP 11504801	T2	19990511	JP 1995-512335	19951009
US 6066324	A	20000523	US 1997-817335	19971002
US 6361778	B1	20020326	US 1999-397680	19990916
AU 760615	B2	20030522	AU 2000-10106	20000105
AU 2000010106	A5	20000316		
US 6599508	B1	20030729	US 2001-949404	20010906

PRIORITY APPLN. INFO.: DE 1994-4435907 A3 19941007
DE 1995-19526752 A 19950721
AU 1996-42701 A3 19951009
WO 1995-EP3974 W 19951009
US 1997-817335 A3 19971002
US 1999-397680 A3 19990916

AB Papilloma virus-like particles are prepared containing recombinant viral structural proteins L1 and/or L2 in which segments of these proteins are deleted and may be replaced with other proteins (e.g. viral early proteins) or protein fragments. These particles may be used in vaccines against tumors of the reproductive tract, e.g. cervical carcinoma.

IT **176521-52-1P**
RL: BAC (Biological activity or effector, except adverse); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**papilloma** virus-like particles containing fusion proteins for vaccines)

L4 ANSWER 18 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 12 Jan 1996
ACCESSION NUMBER: 1996:27856 HCAPLUS
DOCUMENT NUMBER: 124:108357
TITLE: Sequence variation in the capsid protein genes of human papillomavirus type 16 and type 31
AUTHOR(S): Icenogle, Joseph P.; Clancy, Kelly A.; Lin, Sophia Y.
CORPORATE SOURCE: Public Health Service, U.S. Dep. of Health and Human Services, Atlanta, GA, 30333, USA
SOURCE: Virology (1995), 214(2), 664-9
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The sequences of the capsid genes of a human papillomavirus type 16 (HPV 16) DNA and an HPV 31 DNA were determined The HPV 16 DNA contained genes coding for the most variable HPV 16 capsid proteins yet identified (17 variable amino acids). Three of six coding changes in the HPV 31 DNA occurred at positions equivalent to ones where variable amino acids in HPV 16 have been observed Variable amino acids in both viruses occurred predominantly in regions which showed amino acid variation when closely related types of HPV were compared; thus, most of the factors which determined the intratypic variation in the capsid proteins of the viruses described here were likely the same as those which determined differences between the capsid proteins of different HPV types.

IT **172892-77-2 172892-79-4**
RL: PRP (Properties)

(amino acid sequence; sequence variation in capsid protein genes of human **papillomavirus** type 16 and type 31)

L4 ANSWER 19 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 02 Sep 1995
ACCESSION NUMBER: 1995:772980 HCAPLUS
DOCUMENT NUMBER: 123:225926
TITLE: Self-assembling recombinant papillomavirus capsid proteins as vaccine and for diagnosis
INVENTOR(S): Lowy, Douglas R.; Schiller, John T.; Kirnbauer, Reinhard
PATENT ASSIGNEE(S): United States Dept. of Health and Human Services, USA
SOURCE: U.S., 20 pp. Cont.-in-part of U.S. Ser. No. 941, 371.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5437951	A	19950801	US 1993-32869	19930316
WO 9405792	A1	19940317	WO 1993-US8342	19930903
W: AU, CA, JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 662132	A1	19950712	EP 1993-921353	19930903
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 08504087	T2	19960507	JP 1993-507481	19930903
AU 683220	B2	19971106	AU 1993-48475	19930903
AU 9348475	A1	19940329		
JP 2001333788	A2	20011204	JP 2001-101791	19930903
US 5618536	A	19970408	US 1994-319467	19941006
US 5709996	A	19980120	US 1995-472673	19950607
US 5716620	A	19980210	US 1995-475783	19950607
US 5744142	A	19980428	US 1995-475782	19950607
US 5756284	A	19980526	US 1995-472672	19950607
US 5871998	A	19990216	US 1995-472678	19950607
US 5985610	A	19991116	US 1995-484503	19950607
US 5855891	A	19990105	US 1997-781084	19970109
AU 9944479	A1	19991028	AU 1999-44479	19990813
AU 717932	B2	20000406		
US 2003050439	A1	20030313	US 2001-832065	20010409
US 2002164350	A1	20021107	US 2001-878840	20010611
US 2003219873	A1	20031127	US 2003-371846	20030221
US 2003170271	A1	20030911	US 2003-405264	20030401

PRIORITY APPLN. INFO.:

US 1992-941371	A2	19920903
US 1993-32869	A	19930316
JP 1993-507481	A3	19930903
WO 1993-US8342	W	19930903
US 1994-319467	A3	19941006
US 1995-484503	A1	19950607
AU 1995-38284	A3	19951006

US 1997-781084 A1 19970109
US 1998-170129 B1 19981012
US 1999-316487 B1 19990521
US 2001-832065 B1 20010409
US 2001-878840 B1 20010611

AB Recombinant papillomavirus capsid proteins that are capable of self-assembly into capsomer structures and viral capsids that comprise conformational antigenic epitopes are provided. The capsomer structures and viral capsids, consisting of the capsid proteins that are expression products of a bovine, monkey or human papillomavirus L1 conformational coding sequence proteins, can be prepared as vaccines to induce a high-titer neutralizing antibody response in vertebrate animals. The self assembling capsid proteins can also be used as elements of diagnostic immunoassay procedures for papillomavirus infection. In example, described were construction and expression of recombinant papillomavirus L1 or L1/L2 capsid protein-encoding DNA, production of antisera in rabbits, purification of the bovine papillomavirus BPV1, BPV1 neutralization assay, and serum neutralizing titer against BPV1.

IT **155578-70-4**
RL: PRP (Properties)
(amino acid sequence; self-assembling recombinant **papillomavirus** capsid proteins as vaccine and for diagnosis)

L4 ANSWER 20 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 03 Feb 1993
ACCESSION NUMBER: 1993:37211 HCAPLUS
DOCUMENT NUMBER: 118:37211
TITLE: Induction of cytotoxic T lymphocytes with peptides in vitro: Identification of candidate T-cell epitopes in human papilloma virus
AUTHOR(S): Strauss, Hans J.; Davies, Huw; Sadovnikova, Elena; Chain, Benny; Horowitz, Neil; Sinclair, Christine
CORPORATE SOURCE: Imp. Cancer Res. Fund, Univ. Coll., London, UK
SOURCE: Proceedings of the National Academy of Sciences of the United States of America (1992), 89(17), 7871-5
CODEN: PNASA6; ISSN: 0027-8424
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A set of overlapping peptides corresponding to the L1, E6, and E7 proteins of human papilloma virus 16 was tested for their ability to bind to major histocompatibility complex class I mols. and to stimulate cytotoxic T-lymphocyte (CTL) responses in vitro. A class I binding assay using intact RMA-S cells showed that 20 of the 99 human papilloma virus peptides bound to H-2Kb and/or Db mols. Fifteen of the 20 class I-binding peptides stimulated primary CTL responses, whereas peptides that were neg. in the binding assay failed to do so. Peptide-induced CTLs recognized the immunizing peptide very efficiently, requiring no more than 1-10 nM peptide for target cell lysis. However, 2 observations were made that have important implications for the design of peptide-based vaccines for inducing CTLs. Not all major histocompatibility complex-binding peptides that contained known motifs characteristic of naturally

processed peptides induced CTLs. The efficiency of CTL lysis was strongly decreased when the size of the target peptide differed by only 1 amino acid residue from that of the immunizing peptide. Thus, peptides chosen for vaccination must correspond in length to naturally processed peptides.

IT **143743-51-5**
RL: BIOL (Biological study)
(of L1 protein of human **papilloma** virus 16, structure of, in class I histocompatibility antigen binding and cytotoxic T-lymphocyte activation)

L4 ANSWER 21 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 01 Nov 1992
ACCESSION NUMBER: 1992:569102 HCAPLUS
DOCUMENT NUMBER: 117:169102
TITLE: Definition of linear antigenic regions of the HPV16 L1 capsid protein using synthetic virion-like particles
AUTHOR(S): Zhou, Jian; Sun, Xiao-Yi; Davies, Huw; Crawford, Lionel; Park, David; Frazer, Ian H.
CORPORATE SOURCE: Lions Hum. Immunol. Lab., Univ. Queensland, Woolloongabba, 4102, Australia
SOURCE: Virology (1992), 189(2), 592-9
CODEN: VIRLAX; ISSN: 0042-6822
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Mice of 3 haplotypes (H-2d, H-2b, and H-2d/b) were immunized with synthetic human papillomavirus (HPV)16-like particles (VLPs), produced using a vaccinia virus doubly recombinant for the L1 and L2 proteins of HPV16. The resultant anti-VLP antisera recognized HPV16 capsids by ELISA assay and baculovirus recombinant HPV16 L1 and L2 protein on immunoblot. Overlapping peptides corresponding to the HPV16 L1 amino acid sequences were used to define the immunoreactive regions of the L1 protein. The majority of the L1 peptides were reactive with IgG from the mice immunized with the synthetic HPV16 capsids. A computer algorithm predicted 7 B epitopes in HPV16 L1, 5 of which lay within peptides strongly reactive with the murine antisera. The murine anti-VLP antisera failed to react with the 2 peptides recognized by anti-HPV16L1 monoclonal antibodies raised by others against recombinant L1 fusion protein. Thus, immunoreactive epitopes of HPV16 defined using virus-like particles differ significantly from those defined using recombinant HPV16 L1 fusion proteins, which implies that such fusion proteins may not be the antigens to look for in HPV16L1-specific immune responses in HPV-infected patients.

IT **143743-51-5P**
RL: PREP (Preparation)
(of L1 capsid protein of human **papillomavirus** 16, preparation and antigenicity of)

L4 ANSWER 22 OF 22 HCAPLUS COPYRIGHT 2004 ACS on STN
ED Entered STN: 31 Mar 1990
ACCESSION NUMBER: 1990:116820 HCAPLUS
DOCUMENT NUMBER: 112:116820
TITLE: Identification of immunogenic regions of the major coat protein of human papillomavirus type

16 that contain type-restricted epitopes

AUTHOR(S): Cason, John; Patel, Daksha; Naylor, Jennifer; Lunney, Declan; Shepherd, Philip S.; Best, Jennifer M.; McCance, Dennis J.

CORPORATE SOURCE: Richard Dimbleby Lab. Cancer Virology, London, SE1 7EH, UK

SOURCE: Journal of General Virology (1989), 70(11), 2973-87
CODEN: JGVIAY; ISSN: 0022-1317

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Regions were identified of the major capsid protein, L1, of the human papillomavirus (HPV) type 16 (HPV-16 L1), that are recognized by 5 monoclonal antibodies (MAbs) raised to a bacterial fusion protein containing residues 172-375 of HPV-16 L1. All 5 MAbs recognized HPV-16-infected tissue sections by immunohistochem., but not sections infected with HPV-1a (cutaneous warts), HPV-6b or -11 (genital warts). MAbs 3D1, 5A4, and 1D6 also recognized HPV-2-infected sections (cutaneous warts); MAb 8C4 recognized only sections containing HPV-16. Four MAbs (8C4, 3D1, 1D6, and 5A4) recognized a synthetic peptide corresponding to residues 269-284 of HPV-16 L1; within this region a min. antibody binding site was identified, a tripeptide 276-278. However, the complete epitope appears to extend beyond these residues and beyond HPV-16 L1 (269-284). The 5th MAb, 1C6, recognized bacterial fusion proteins containing HPV-6b L1, -16 L1 or -18 L1 using immunoblots, yet appeared HPV-16-specific when tested on infected tissue sections. This MAb recognized 5 amino acids within a different region of HPV-16 L1 (residues 299-313).

IT **125551-62-4**
RL: BIOL (Biological study)
(from human **papilloma** virus type 16, preparation and antigenic determinant mapping on)

E30 THROUGH E59 ASSIGNED

FILE 'REGISTRY' ENTERED AT 15:30:11 ON 03 MAR 2004

L5 30 SEA FILE=REGISTRY ABB=ON PLU=ON (143743-51-5/BI OR 243135-53-7/BI OR 308800-09-1/BI OR 125551-62-4/BI OR 155578-70-4/BI OR 172892-77-2/BI OR 172892-79-4/BI OR 176521-52-1/BI OR 204338-84-1/BI OR 244773-43-1/BI OR 272100-89-7/BI OR 272100-91-1/BI OR 295372-67-7/BI OR 308800-07-9/BI OR 344806-30-0/BI OR 405194-67-4/BI OR 434341-62-5/BI OR 434341-76-1/BI OR 475437-53-7/BI OR 475437-55-9/BI OR 582340-39-4/BI OR 583085-22-7/BI OR 622878-55-1/BI OR 624440-70-6/BI OR 627561-74-4/BI OR 627561-77-7/BI OR 627561-78-8/BI OR 627561-79-9/BI OR 627561-80-2/BI OR 627561-81-3/BI)

L6 30 L1 AND L5

L6 ANSWER 1 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **627561-81-3** REGISTRY
CN Protein (synthetic human papillomavirus 16 clone H) (9CI) (CA INDEX NAME)
OTHER NAMES:

```
CN   6: PN: WO03097673 SEQID: 13 claimed sequence
CN   Protein (synthetic human papillomavirus 16 chineric construct H)
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP LVEETSFIDA GAPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                 == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   139-147, 304-312

REFERENCE   1:  140:1544

L6   ANSWER 2 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   627561-80-2  REGISTRY
CN   Protein (synthetic human papillomavirus 16 clone F) (9CI)  (CA INDEX
     NAME)
OTHER NAMES:
CN   4: PN: WO03097673 SEQID: 11 claimed sequence
CN   Protein (synthetic human papillomavirus 16 chineric construct F)
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                 == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLVEETSF IDAGAPACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   139-147, 304-312

REFERENCE   1:  140:1544

L6   ANSWER 3 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   627561-79-9  REGISTRY
CN   Protein (synthetic human papillomavirus 16 clone E) (9CI)  (CA INDEX
     NAME)
OTHER NAMES:
CN   2: PN: WO03097673 SEQID: 9 claimed sequence
CN   Protein (synthetic human papillomavirus 16 chineric construct E)
```

```
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
              ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK LVEETSFIDA GAPYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   139-147, 304-312

REFERENCE   1:  140:1544

L6   ANSWER 4 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   627561-78-8  REGISTRY
CN   Protein (synthetic human papillomavirus 16 clone C) (9CI)  (CA INDEX
     NAME)
OTHER NAMES:
CN   6: PN: WO03097673 SEQID: 7 claimed sequence
CN   Protein (synthetic human papillomavirus 16 chineric construct C)
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE LVEETSFIDA GAPRECISMD
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
              ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   304-312

REFERENCE   1:  140:1544

L6   ANSWER 5 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   627561-77-7  REGISTRY
CN   Protein (synthetic human papillomavirus 16 clone A) (9CI)  (CA INDEX
     NAME)
OTHER NAMES:
CN   4: PN: WO03097673 SEQID: 5 claimed sequence
CN   Protein (synthetic human papillomavirus 16 chineric construct A)
CI   MAN
SQL  505
```

```
SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSLVEETSF IDAGAPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   139-147, 304-312

REFERENCE   1:  140:1544

L6   ANSWER 6 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   627561-74-4  REGISTRY
CN   Protein L1 (synthetic human papillomavirus 16 gene L1) (9CI)  (CA
     INDEX NAME)
OTHER NAMES:
CN   2: PN: WO03097673 SEQID: 3 claimed sequence
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   139-147, 304-312

**RELATED SEQUENCES AVAILABLE WITH SEQLINK**

REFERENCE   1:  140:1544

L6   ANSWER 7 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   624440-70-6  REGISTRY
CN   Protein MCP (major capsid protein) (Human papillomavirus type 16
     gene L1) (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   GenBank AAA46943
CN   GenBank AAA46943 (TRANSLATED FROM: GenBank K02718)
CI   MAN
SQL  531

SEQ      1 MQVTFIYILV ITCYENDVNV YHIFFQMSLW LPSEATVYLP PVPVSKVVST
```

```
        51 DEYVARTNIY YHAGTSRLLA VGHPYFPIKK PNNNKILVPK VSGLQYRVFR
       101 IHLPDPNKFG FPDTSFYNPD TQRLVWACVG VEVGRGQPLG VGISGHPLLN
       151 KLDDTENASA YAANAGVDNR ECISMDYKQT QLCLIGCKPP IGEHWGKGSP
                         ====== ===
       201 CTNVAVNPGD CPPLELINTV IQDGDMVHTG FGAMDFTTLQ ANKSEVPLDI
       251 CTSICKYPDY IKMVSEPYGD SLFFYLRREQ MFVRHLFNRA GTVGENVPDD
       301 LYIKGSGSTA NLASSNYFPT PSGSMVTSDA QIFNKPYWLQ RAQGHNNGIC
                                          = ========
       351 WGNQLFVTVV DTTRSTNMSL CAAISTSETT YKNTNFKEYL RHGEEYDLQF
       401 IFQLCKITLT ADVMTYIHSM NSTILEDWNF GLQPPPGGTL EDTYRFVTQA
       451 IACQKHTPPA PKEDDPLKKY TFWEVNLKEK FSADLDQFPL GRKFLLQAGL
       501 KAKPKFTLGK RKATPTTSST STTAKRKKRK L
HITS AT:    165-173, 330-338

**RELATED SEQUENCES AVAILABLE WITH SEQLINK**

REFERENCE   1:  140:87675

L6   ANSWER 8 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   622878-55-1  REGISTRY
CN   9: PN: WO03093437 SEQID: 9 unclaimed protein (9CI)  (CA INDEX NAME)
CI   MAN
SQL  473

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIYLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                  == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCNNVAV TPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
              ======= ==
       351 SEPTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMSY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAG
HITS AT:    139-147, 304-312

REFERENCE   1:  139:379997

L6   ANSWER 9 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   583085-22-7  REGISTRY
CN   21: PN: WO03068940 SEQID: 21 unclaimed protein (9CI)  (CA INDEX
     NAME)
CI   MAN
SQL  531

SEQ      1 MQVTFIYILV ITCYENDVNV YHIFFQMSLW LPSEATVYLP PVPVSKVVST
        51 DEYVARTNIY YHAGTSRLLA VGHPYFPIKK PNNNKILVPK VSGLQYRVFR
       101 IHLPDPNKFG FPDTSFYNPD TQRLVWACVG VEVGRGQPLG VGISGHPLLN
       151 KLDDTENASA YAANAGVDNR ECISMDYKQT QLCLIGCKPP IGEHWGKGSP
                         ====== ===
       201 CTNVAVNPGD CPPLELINTV IQDGDMVHTG FGAMDFTTLQ ANKSEVPLDI
       251 CTSICKYPDY IKMVSEPYGD SLFFYLRREQ MFVRHLFNRA GTVGENVPDD
       301 LYIKGSGSTA NLASSNYFPT PSGSMVTSDA QIFNKPYWLQ RAQGHNNGIC
                                          = ========
```

```
       351 WGNQLFVTVV DTTRSTNMSL CAAISTSETT YKNTNFKEYL RHGEEYDLQF
       401 IFQLCKITLT ADVMTYIHSM NSTILEDWNF GLQPPPGGTL EDTYRFVTQA
       451 IACQKHTPPA PKEDDPLKKY TFWEVNLKEK FSADLDQFPL GRKFLLQAGL
       501 KAKPKFTLGK RKATPTTSST STTAKRKKRK L
HITS AT:    165-173, 330-338

**RELATED SEQUENCES AVAILABLE WITH SEQLINK**

REFERENCE   1:  139:193297

L6   ANSWER 10 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   582340-39-4  REGISTRY
CN   6: PN: WO03068163 SEQID: 6 unclaimed protein (9CI)  (CA INDEX NAME)
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:    139-147, 304-312

**RELATED SEQUENCES AVAILABLE WITH SEQLINK**

REFERENCE   1:  139:196258

L6   ANSWER 11 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   475437-55-9  REGISTRY
CN   Protein L1 (human papillomavirus 16) (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   4: PN: US20020168372 SEQID: 4 claimed protein
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
```

HITS AT: 139-147, 304-312

REFERENCE 1: 137:364445

L6 ANSWER 12 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **475437-53-7** REGISTRY
CN Protein L1 (human papillomavirus 16) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3: PN: US20020168372 SEQID: 3 claimed protein
CI MAN
SQL 505

```
SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTIIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
```

HITS AT: 139-147, 304-312

REFERENCE 1: 137:364445

L6 ANSWER 13 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **434341-76-1** REGISTRY
CN L-Glutamine, L-seryl-L-methionyl-L-valyl-L-threonyl-L-seryl-L-α-aspartyl-L-alanyl-L-glutaminyl-L-isoleucyl-L-phenylalanyl-L-asparaginyl-L-lysyl-L-prolyl-L-tyrosyl-L-tryptophyl-L-leucyl-L-glutaminyl-L-arginyl-L-alanyl- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 8: PN: WO0244384 SEQID: 28 unclaimed sequence
SQL 20

```
SEQ      1 SMVTSDAQIF NKPYWLQRAQ
             ==== =====
```

HITS AT: 7-15

REFERENCE 1: 137:19374

L6 ANSWER 14 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **434341-62-5** REGISTRY
CN L-Lysine, L-seryl-L-alanyl-L-tyrosyl-L-alanyl-L-alanyl-L-asparaginyl-L-alanylglycyl-L-valyl-L-α-aspartyl-L-asparaginyl-L-arginyl-L-α-glutamyl-L-cysteinyl-L-isoleucyl-L-seryl-L-methionyl-L-α-aspartyl-L-tyrosyl- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 13: PN: WO0244384 SEQID: 13 unclaimed sequence
SQL 20

```
SEQ      1 SAYAANAGVD NRECISMDYK
```

```
                  ==== =====
HITS AT:    7-15

REFERENCE   1:  137:19374

L6   ANSWER 15 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   405194-67-4  REGISTRY
CN   Antigen VCA (viral capsid antigen) (human papillomavirus 16 strain
     114/B gene L1h) (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Capsid protein (synthetic HPV16 strain 114/B gene 16L1h)
CN   Protein (human papillomavirus 16 strain 114/B gene L1p)
CN   Protein (synthetic HPV16 strain 114/B gene 16L1p)
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
              ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:    139-147, 304-312

**RELATED SEQUENCES AVAILABLE WITH SEQLINK**

REFERENCE   1:  136:257935

L6   ANSWER 16 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   344806-30-0  REGISTRY
CN   Protein L1 (human papillomavirus 31) (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   46: PN: WO0141799 PAGE: 23-24 claimed sequence
CI   MAN
SQL  504

SEQ      1 MSLWRPSEAT VYLPPVPVSK VVSTDEYVTR TNIYYHAGSA RLLTVGHPYY
        51 SIPKSDNPKK IWVPKVSGLQ YRVFRVRLPD PNKFGFPDTS FYNPETQRLV
       101 WACVGLEVGR GQPLGVGISG HPLLNKFDDT ENSNRYAGGP GTDNRECISM
       151 DYKQTQLCLL GCKPPIGEHW GKGSPCSNNA ITPGDCPPLE LKNSVIQDGD
       201 MVDTGFGAMD FTALQDTKSN VPLDICNSIC KYPDYLKMVA EPYGDTLFFY
       251 LRREQMFVRH FFNRSGTVGE SVPTDLYIKG SGSTATLANS TYFPTPSGSM
       301 VTSDAQIFNK PYWMQRAQGH NNGICWGNQL FVTVVDTTRS TNMSVCAAIA
              ====== ===
       351 NSDTTFKSSN FKEYLRHGEE FDLQFIFQLC KITLSADIMT YIHSMNPAIL
       401 EDWNFGLTTP PSGSLEDTYR FVTSQAITCQ KTAPQKPKED PFKDYVFWEV
       451 NLKEKFSADL DQFPLGRKFL LQAGYRARPK FKAGKRSAPS ASTTTPAKRK
       501 KTKK
HITS AT:    305-313
```

REFERENCE 1: 135:45179

L6 ANSWER 17 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **308800-09-1** REGISTRY
CN L-Isoleucine, L-alanylglycyl-L-valyl-L-α-aspartyl-L-asparaginyl-L-arginyl-L-α-glutamyl-L-cysteinyl- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 2: PN: DE19925235 SEQID: 2 claimed protein
SQL 9

SEQ 1 AGVDNRECI
========
HITS AT: 1-9

REFERENCE 1: 138:383747

REFERENCE 2: 134:16537

L6 ANSWER 18 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **308800-07-9** REGISTRY
CN L-Tryptophan, L-alanyl-L-glutaminyl-L-isoleucyl-L-phenylalanyl-L-asparaginyl-L-lysyl-L-prolyl-L-tyrosyl- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1: PN: DE19925235 SEQID: 1 claimed protein
SQL 9

SEQ 1 AQIFNKPYW
========
HITS AT: 1-9

REFERENCE 1: 134:16537

L6 ANSWER 19 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **295372-67-7** REGISTRY
CN Protein L1 (human papillomavirus 16) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1: PN: WO0054730 SEQID: 1 claimed protein
CI MAN
SQL 531

SEQ 1 MQVTFIYILV ITCYENDVNV YHIFFQMSLW LPSEATVYLP PVPVSKVVST
51 DEYVARTNIY YHAGTSRLLA VGHPYFPIKK PNNNKILVPK VSGLQYRVFR
101 IHLPDPNKFG FPDTSFYNPD TQRLVWACVG VEVGRGQPLG VGISGHPLLN
151 KLDDTENASA YAANAGVDNR ECISMDYKQT QLCLIGCKPP IGEHWGKGSP
====== ===
201 CTNVAVNPGD CPPLELINTV IQDGDMVHTG FGAMDFTTLQ ANKSEVPLDI
251 CTSICKYPDY IKMVSEPYGD SLFFYLRREQ MFVRHLFNRA GTVGENVPDD
301 LYIKGSGSTA NLASSNYFPT PSGSMVTSDA QIFNKPYWLQ RAQGHNNGIC
= ========
351 WGNQLFVTVV DTTRSTNMSL CAAISTSETT YKNTNFKEYL RHGEEYDLQF
401 IFQLCKITLT ADVMTYIHSM NSTILEDWNF GLQPPPGGTL EDTYRFVTQA
451 IACQKHTPPA PKEDDPLKKY TFWEVNLKEK FSADLDQFPL GRKFLLQAGL
501 KAKPKFTLGK RKATPTTSST STTAKRKKRK L
HITS AT: 165-173, 330-338

RELATED SEQUENCES AVAILABLE WITH SEQLINK

REFERENCE 1: 133:256735

L6 ANSWER 20 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **272100-91-1** REGISTRY
CN Protein (synthetic papillomavirus biotin-binding protein 169) (9CI)
(CA INDEX NAME)
OTHER NAMES:
CN 5: PN: WO0031128 SEQID: 7 claimed protein
CI MAN
SQL 499

```
SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIASQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGGGGRGEF TGTYITAVT
HITS AT:   139-147, 304-312
```

REFERENCE 1: 133:22397

L6 ANSWER 21 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **272100-89-7** REGISTRY
CN Protein (synthetic papillomavirus biotin-binding protein 168) (9CI)
(CA INDEX NAME)
OTHER NAMES:
CN 3: PN: WO0031128 SEQID: 5 claimed protein
CI MAN
SQL 497

```
SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIASQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGGGGCSWA PPFKASC
HITS AT:   139-147, 304-312
```

REFERENCE 1: 133:22397

L6 ANSWER 22 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN

RN **244773-43-1** REGISTRY
CN 1-473-Protein L 1 (human papillomavirus 16 gene L1) fusion protein with 1-55-RNA formation factor (human papillomavirus 16 gene E7) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN PN: WO9948917 PAGE: 12 claimed sequence
CI MAN
SQL 528

```
SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VHTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGMHGDTPT LHEYMLDLQP ETTDLYCYEQ
       501 LNDSSEEEDE IDGPAGQAEP DRAHYNIV
```

HITS AT: 139-147, 304-312

REFERENCE 1: 131:262610

L6 ANSWER 23 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **243135-53-7** REGISTRY
CN Capsid protein (human papillomavirus 16 SiHa cell variant) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 32: PN: WO0141799 PAGE: 21 claimed sequence
CN Protein L1 (human papillomavirus 16)
CI MAN
SQL 531

```
SEQ      1 MQVTFIYILV ITCYENDVNV YHIFFQMSLW LPSEATVYLP PVPVSKVVST
        51 DEYVARTNIY YHAGTSRLLA VGHPYFPIKK PNNNKILVPK VSGLQYRVFR
       101 IHLPDPNKFG FPDTSFYNPD TQRLVWACVG VEVGRGQPLG VGISGHPLLN
       151 KLDDTENASA YAANAGVDNR ECISMDYKQT QLCLIGCKPP IGEHWGKGSP
                     ====== ===
       201 CTNVAVNPGD CPPLELINTV IQDGDMVDTG FGAMDFTTLQ ANKSEVPLDI
       251 CTSICKYPDY IKMVSEPYGD SLFFYLRREQ MFVRHLFNRA GAVGENVPDD
       301 LYIKGSGSTA NLASSNYFPT PSGSMVTSDA QIFNKPYWLQ RAQGHNNGIC
                                 = ========
       351 WGNQLFVTVV DTTRSTNMSL CAAISTSETT YKNTNFKEYL RHGEEYDLQF
       401 IFQLCKITLT ADVMTYIHSM NSTILEDWNF GLQPPPGGTL EDTYRFVTSQ
       451 AIACQKHTPP APKEDPLKKY TFWEVNLKEK FSADLDQFPL GRKFLLQAGL
       501 KAKPKFTLGK RKATPTTSST STTAKRKKRK L
```

HITS AT: 165-173, 330-338

RELATED SEQUENCES AVAILABLE WITH SEQLINK

REFERENCE 1: 135:45179

REFERENCE 2: 131:209883

L6 ANSWER 24 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **204338-84-1** REGISTRY
CN Protein (human papillomavirus 77 gene L1) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank CAA75468
CN GenBank CAA75468 (Translated from: GenBank Y15175)
CI MAN
SQL 565

```
SEQ      1 MCIYTLAPTL FCLLLHNGLL FLYYLLTQHI MCTLMEAIFI CGLLPFLCLG
        51 NVAVNVFHIF LQMALWRSSD NLVYLPPTPV SKVISTDDYV TRTNVYYYAG
       101 SSRLLTVGHP YFAIPKTSGT KVDVPKVSAF QYRVFRVRLP DPNKFGLPDA
       151 RIYNPEAERL VWACTGVEVG RGQPLGVGLS GHPLYNKLND TENSNIAHAD
       201 NSPDSRDNIS VDCKQTQLCI LGCTPPMGEY WGKGTPCART NTTPGDCPPL
       251 ELMTSYIQDG DMVDTGYGAM DFTALQFNKS DVPLDICQSI CKYPDYLGMA
       301 ADPYGDSMFF FLRREQLFAR HFFNRAGDVG DKIPESLYLK GSSGRETPGS
       351 AIYSPTPSGS MVTSEAQIFN KPYWLQQAQG HNNGICWGNQ VFLTVVDTTR
                           ===== ====
       401 STNMSLSAST ESQTPSTYDA TKIKEYLRHG EEYDLQFIFQ LCKVTLTPEI
       451 MAYIHTMNTA LLEDWNFGLT LPPSTSLEDT YRFVTSSAIT CQKDVAPTEK
       501 QDPYAKLNFW DVDLKDRFTL DLSQFPLGRK FLLQIGARRR SVVPSRKRRA
       551 PTPSPASTKR KRSKK
HITS AT:   366-374
```

REFERENCE 1: 128:213916

L6 ANSWER 25 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **176521-52-1** REGISTRY
CN (1-305)-(316-505)-Protein L1 (human papillomavirus 16 coat) (9CI)
(CA INDEX NAME)
OTHER CA INDEX NAMES:
CN (1-305)-(316-505)-Protein L1 (human papilloma virus 16 coat)
CI MAN
SQL 495

```
SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIYLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                  == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCNNVAV TPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GPTANLASSN YFPTPSGSMV
       301 TSDAQAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST SEPTYKNTNF
       351 KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE DWNFGLQPPP
       401 GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN LKEKFSADLD
       451 QFPLGRKFLL QAGFKAKPKF TLGKRKATPT TSSTSTTAKR KKRKL
HITS AT:   139-147
```

REFERENCE 1: 125:8475

L6 ANSWER 26 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **172892-79-4** REGISTRY
CN Protein L1 (human papillomavirus 31 capsid) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Protein L1 (human papilloma virus 31 capsid)

```
OTHER NAMES:
CN   Capsid protein L1 (human papillomavirus 31)
CN   L1 capsid protein (human papillomavirus 31)
CI   MAN
SQL  504

SEQ      1 MSLWRPSEAT VYLPPVPVSK VVSTDEYVTR TNIYYHAGSA RLLTVGHPYY
        51 SIPKSDNPKK IVVPKVSGLQ YRVFRVRLPD PNKFGFPDTS FYNPETQRLV
       101 WACVGLEVGR GQPLGVGISG HPLLNKFDDT ENSNRYAGGP GTDNRECISM
       151 DYKQTQLCLL GCKPPIGEHW GKGSPCSNNA ITPGDCPPLE LKNSVIQDGD
       201 MVDTGFGAMD FTALQDTKSN VPLDICNSIC KYPDYLKMVA EPYGDTLFFY
       251 LRREQMFVRH FFNRSGAVGE SVPNDLYIKG SGSTATLANS TYFPTPSGSM
       301 VTSDAQIFNK PYWMQRAQGH NNGICWGNQL FVTVVDTTRS TNMSVCAAIA
                ====== ===
       351 NSDTTFKSSN FKEYLRHGEE FDLQFIFQLC KITLSADIMT YIHSMNPAIL
       401 EDWNFGLTTP PSGSLEDTYR FVTSQAITCQ KTAPQKPKED PFKDYVFWEV
       451 NLKEKFSADL DQFPLGRKFL LQAGYRARPK FKAGKRSAPS ASTTTPAKRK
       501 KTKK
HITS AT:   305-313

**RELATED SEQUENCES AVAILABLE WITH SEQLINK**

REFERENCE   1:  124:108357

L6   ANSWER 27 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   172892-77-2  REGISTRY
CN   Protein L1 (human papillomavirus 16 capsid) (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Protein L1 (human papilloma virus 16 capsid)
OTHER NAMES:
CN   Capsid protein L1 (human papillomavirus 16)
CN   L1 coat protein (human papillomavirus 16)
CI   MAN
SQL  505

SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIYLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                 == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCNNVAV TPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGAVGEN VPDDLYIKGS GPTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
              ======= ==
       351 SEPTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTSQAIACQK HTPPAPKEDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGFKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   139-147, 304-312

**RELATED SEQUENCES AVAILABLE WITH SEQLINK**

REFERENCE   1:  124:108357

L6   ANSWER 28 OF 30  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   155578-70-4  REGISTRY
```

CN Protein L 1 (bovine papillomavirus 16 gene L1 reduced) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Protein L 1 (bovine papilloma virus 16 gene L1 reduced)
OTHER NAMES:
CN Protein (human papilloma 16 virus strain wild-type gene L1)
CI MAN
SQL 505

```
SEQ      1 MSLWLPSEAT VYLPPVPVSK VVSTDEYVAR TNIYYHAGTS RLLAVGHPYF
        51 PIKKPNNNKI LVPKVSGLQY RVFRIHLPDP NKFGFPDTSF YNPDTQRLVW
       101 ACVGVEVGRG QPLGVGISGH PLLNKLDDTE NASAYAANAG VDNRECISMD
                                                   == =======
       151 YKQTQLCLIG CKPPIGEHWG KGSPCTNVAV NPGDCPPLEL INTVIQDGDM
       201 VDTGFGAMDF TTLQANKSEV PLDICTSICK YPDYIKMVSE PYGDSLFFYL
       251 RREQMFVRHL FNRAGTVGEN VPDDLYIKGS GSTANLASSN YFPTPSGSMV
       301 TSDAQIFNKP YWLQRAQGHN NGICWGNQLF VTVVDTTRST NMSLCAAIST
             ======= ==
       351 SETTYKNTNF KEYLRHGEEY DLQFIFQLCK ITLTADVMTY IHSMNSTILE
       401 DWNFGLQPPP GGTLEDTYRF VTQAIACQKH TPPAPKEDDP LKKYTFWEVN
       451 LKEKFSADLD QFPLGRKFLL QAGLKAKPKF TLGKRKATPT TSSTSTTAKR
       501 KKRKL
HITS AT:   139-147, 304-312
```

REFERENCE 1: 123:225926

REFERENCE 2: 121:5012

L6 ANSWER 29 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **143743-51-5** REGISTRY
CN L-Methionine, L-tyrosyl-L-alanyl-L-alanyl-L-asparaginyl-L-alanylglycyl-L-valyl-L-α-aspartyl-L-asparaginyl-L-arginyl-L-α-glutamyl-L-cysteinyl-L-isoleucyl-L-seryl- (9CI) (CA INDEX NAME)
SQL 15

```
SEQ      1 YAANAGVDNR ECISM
             ====== ===
HITS AT:   5-13
```

REFERENCE 1: 118:37211

REFERENCE 2: 117:169102

L6 ANSWER 30 OF 30 REGISTRY COPYRIGHT 2004 ACS on STN
RN **125551-62-4** REGISTRY
CN L-Leucine, L-methionyl-L-valyl-L-threonyl-L-seryl-L-α-aspartyl-L-alanyl-L-glutaminyl-L-isoleucyl-L-phenylalanyl-L-asparaginyl-L-lysyl-L-prolyl-L-tyrosyl-L-tryptophyl- (9CI) (CA INDEX NAME)
SQL 15

```
SEQ      1 MVTSDAQIFN KPYWL
             ===== ====
HITS AT:   6-14
```

REFERENCE 1: 129:26894

REFERENCE 2: 112:116820

FILE 'HOME' ENTERED AT 15:30:44 ON 03 MAR 2004

Searcher : Shears 571-272-2528